

ABSTRACT OF THE DISCLOSURE

A linear compensation system of a digital TV relay or other apparatus preferably includes a transmitting unit configured to modulate a data to an intermediate frequency (IF) signal, up convert the IF signal to an RF signal, and amplify the RF signal to a predetermined level using a high power amplifier (HPA). The system also includes a linear compensation unit to preferably directly vary a step size of an adaptive equalizer according to whether a signal-to-noise ratio (SNR) or an error vector magnitude (EVM) for an output signal of the HPA satisfies an advanced television systems committee (ATSC) or other standard. The linear compensation unit is thus configured to output an improved linear compensation coefficient to a modulator of the transmitting unit.